optical amplifying control means for starting up said optical amplifying means, waiting a first predetermined time to raise output power of said optical amplifying means up to a desired level, in order to prevent an OSC signal from experiencing abrupt power variations; and

(b) an optical receiver, comprising:

pump light emitting means for producing a pump light for injection to the optical transmission line so as to make the optical transmission line serve as an amplifying medium, and

pump light emitting control means for starting up said pump light emitting means, waiting a second predetermined time to raise the pump light to a desired power level, in order to prevent the OSC signal from experiencing abrupt power variations;

wherein said pump light emitting control means comprises a timer with a predetermined time constant that is enabled when the optical transmission system starts to operate; and

said pump light emitting control means starts to raise the pump light in a stepwise fashion after said timer has expired, whereby said pump light emitting means starts up later than said optical amplifying means.

2. (previously presented) The optical transmission system according to claim 1, further comprising a variable optical attenuator disposed before said optical amplifying means to vary input signal level thereof, wherein:

said optical amplifying means is controlled in both automatic level control (ALC) and automatic gain control (AGC) modes;

said optical amplifying control means controls said optical amplifier in the ALC mode to raise the output power thereof from zero level; and

after said optical amplifying means has moved into the AGC mode, said optical amplifier controller controls the input signal level of said optical amplifying means by varying attenuation level of said variable optical attenuator, thereby controlling the output power of said optical amplifying means.

3. (previously presented) The optical transmission system according to claim 1, further comprising a variable optical attenuator disposed before said optical amplifying means in said optical transmitter to vary input signal level thereof, wherein:

said optical amplifying means is controlled in AGC mode; and

said optical amplifying control means first sets a maximum attenuation level to said

variable optical attenuator and then gradually reduces the attenuation level, thereby increasing the output power of said optical amplifying means in a stepwise fashion.

4. (cancelled)

5. (cancelled)

6. (previously presented) The optical transmission system according to claim 1, wherein:

said optical transmitter sends a downstream OSC signal to said optical receiver to indicate that said optical amplifier controller has finished raising the output power of said optical amplifying means; and

said pump light emitting control means starts to raise the pump light in a stepwise fashion upon receipt of the downstream OSC signal.

7. (previously presented) The optical transmission system according to claim 1, wherein:

said optical receiver sends an upstream OSC signal to said optical transmitter to indicate that said pump light emitting control means has finished raising the pump light; and

said optical amplifying control means starts to raise the output power of said optical amplifying means in a stepwise fashion upon receipt of the upstream OSC signal.

8. (previously presented) The optical transmission system according to claim 1, wherein said optical amplifying control means and said pump light emitting control means respectively start up said optical amplifying means and said pump light emitting means in an interactive way, communicating each other's ongoing process status by sending OSC signals back and forth.

9. (previously presented) The optical transmission system according to claim 1, wherein:

said optical receiver comprises monitoring control means for watching at least one of main signal power and OSC signal power;

said optical receiver sends an upstream OSC signal to notify said optical transmitter of monitoring results of said monitoring control means; and

based on the monitoring results received from said optical receiver, said optical amplifying control means calculates control step parameters for use in raising the output power of said optical amplifying means in a stepwise fashion.

10. (previously presented) The optical transmission system according to claim 1, wherein:

said optical receiver comprises a monitoring control means that watches at least one of main signal power and OSC signal power; and

based on monitoring results of said monitoring control means, said pump light emitting control means calculates control step parameters for use in raising the pump light in a stepwise fashion.

11. (previously presented) The optical transmission system according to claim 1, wherein said optical transmitter and said optical receiver each comprise a mask time setting means that defines and uses a mask time in checking incoming OSC signals in such a way that a substantial OSC error is detected only when OSC signal faults continue for a period longer than the mask time.

12. (previously presented) The optical transmission system according to claim 1, wherein said optical amplifying control means calculates control step parameters from the desired level of said optical amplifying when raising the output power in a stepwise fashion.

13. (previously presented) The optical transmission system according to claim 1, wherein:

said optical amplifying control means comprises a memory that stores control step parameters to achieve the desired level of said optical amplifying means; and

said optical amplifying control means reads out the control step parameters from said memory when raising the output power of said optical amplifying means in a stepwise fashion.

14. (previously presented) The optical transmission system according to claim 1, wherein said pump light emitting control means calculates control step parameters from the desired power level of the pump light when raising the pump light in a stepwise fashion.

15. (previously presented) The optical transmission system according to claim 1, wherein:

said pump light emitting control means comprises a memory that stores control step parameters to achieve the desired power level of the pump light; and

said pump light emitting control means reads out the control step parameters from said memory when raising the pump light in a stepwise fashion.

16. (currently amended) An optical transmission system which transports optical signals between upstream and downstream stations over an optical transmission line, each station comprising:

optical amplifying means for amplifying main signals;

optical amplifying control means for starting up said optical transmitter, waiting a first predetermined time to raise output power of said optical amplifying means up to a desired level, in order to prevent an OSC signal from experiencing abrupt power variations;

a pump light emitting means for producing a pump light for injection to the optical transmission line so as to make the optical transmission line serve as an amplifying medium; and

a pump light emitting control means for starting up said pump light emitting means, waiting a second predetermined time to raise the pump light to a desired power level, in order to prevent the OSC signal from experiencing abrupt power variations;

wherein said pump light emitting control means comprises a timer with a predetermined time constant that is enabled when the optical transmission system starts to operate; and

said pump light emitting control means starts to raise the pump light in a stepwise fashion after said timer has expired, whereby said pump light emitting means in the downstream station starts up later than said optical amplifying means in the upstream station.

17. (previously presented) The optical transmission system according to claim 16, further comprising a variable optical attenuator disposed before said optical amplifying means to vary input signal level thereof, wherein:

said optical amplifying means is controlled in both ALC and AGC modes;

said optical amplifying control means controls said optical amplifying means in the ALC mode to raise the output power thereof from zero level; and

after said optical amplifying means has moved into the AGC mode, said optical

amplifying control means controls the input signal level of said optical amplifying means by varying attenuation level of said variable optical attenuator, thereby controlling the output power of said optical amplifying means.

18. (previously presented) The optical transmission system according to claim 16, further comprising a variable optical attenuator disposed before said optical amplifying means to vary input signal level thereof, wherein:

said optical amplifying means is controlled in AGC mode; and

said optical amplifying control means first sets a maximum attenuation level to said variable optical attenuator and then gradually reduces the attenuation level, thereby increasing the output power of said optical amplifying means in a stepwise fashion.

19. (cancelled)

20. (cancelled)

21. (previously presented) The optical transmission system according to claim 16, wherein:

said optical amplifying control means in the upstream station sends a downstream OSC signal to the downstream station to indicate that said optical amplifying control means has finished raising the output power of said optical amplifying means; and

in the downstream station, said pump light emitting control means starts to raise the pump light in a stepwise fashion upon receipt of the downstream OSC signal.

22. (previously presented) The optical transmission system according to claim 16, wherein:

said pump light emitting control means in the downstream station sends an upstream OSC signal to the upstream station to indicate that said pump light emitting control means has finished raising the pump light; and

in the upstream station, said optical amplifying control means starts to raise the output power of said optical amplifying means in a stepwise fashion upon receipt of the upstream OSC signal.

23. (previously presented) The optical transmission system according to claim 16, wherein said optical amplifying control means and said pump light emitting control means in the upstream and downstream stations respectively start up said optical amplifying means and said pump light emitting means in an interactive way, communicating each other's ongoing process status by sending OSC signals back and forth.

24. (previously presented) The optical transmission system according to claim 16, wherein:

each station further comprises monitoring control means for watching at least one of main signal power and OSC signal power;

the downstream station sends an upstream OSC signal to notify the upstream station of monitoring results of said monitoring control means; and

in the upstream station, said optical amplifying control means calculates control step parameters, based on the monitoring results received from the downstream station, for use in raising the output power of said optical amplifying means in a stepwise fashion.

25. (previously presented) The optical transmission system according to claim 16, wherein:

each station further comprises a monitoring control means that watches at least one of main signal power and OSC signal power; and

said pump light emitting control means calculates control step parameters, based on monitoring results provided by said monitoring control means, for use in raising the pump light in a stepwise fashion.

26. (previously presented) The optical transmission system according to claim 16, wherein each station further comprises a mask time setting means that defines and uses a mask time in checking incoming OSC signals in such a way that a substantial OSC error is detected only when OSC signal faults continue for a period longer than the mask time.

27. (previously presented) The optical transmission system according to claim 16, wherein said optical amplifying control means calculates control step parameters from the desired level of said optical amplifying means when raising the output power in a stepwise fashion.

28. (previously presented) The optical transmission system according to claim 16, wherein:

said optical amplifying control means comprises a memory that stores control step parameters to achieve the desired level of said optical amplifying means; and

said optical amplifying control means reads out the control step parameters from said memory when raising the output power of said optical amplifying means in a stepwise fashion.

29. (previously presented) The optical transmission system according to claim 16, wherein said pump light emitting control means calculates control step parameters from the desired power level of the pump light when raising the pump light in a stepwise fashion.

30. (previously presented) The optical transmission system according to claim 16, wherein:

said pump light emitting control means comprises a memory that stores control step parameters to achieve the desired power level of the pump light; and

said pump light emitting control means reads out the control step parameters from said memory when raising the pump light in a stepwise fashion.

31. (currently amended) A method of suppressing temporary OSC signal errors, comprising ~~the steps of~~:

starting up an optical amplifying means, spending a first predetermined time to raise output power of the optical amplifying means up to a desired level, in order to prevent an OSC signal from experiencing abrupt power variations, wherein the optical amplifying means is a device that amplifies main signals; and

starting up a pump light emitting means, spending a second predetermined time to raise a pump light to a desired power level, in order to prevent the OSC signal from experiencing abrupt power variations, wherein the pump light emitting means is a device that produces the pump light for injection to an optical transmission line so as to make the optical transmission line serve as an amplifying medium.

32. (previously presented) The method according to claim 31, wherein starting up the optical amplifying means and the pump light emitting means are executed at different times.

33. (cancelled)

34. (cancelled)

35. (cancelled)

36. (cancelled)

37. (currently amended) A method of suppressing optical supervisory signal errors, comprising:

raising output power of an optical amplifier up to a desired level in a stepwise fashion, the optical amplifier being disposed in an optical transmitter to amplify main optical signals for transport over a downstream optical transmission line;

raising a pump light to a desired power level in a stepwise fashion, the pump lights being produced by a pump light source disposed in an optical receiver for injection to the downstream optical transmission line so as to cause Raman amplification;

monitoring power levels of at least one of an incoming main optical signal and an incoming optical supervisory signal that the optical receiver receives;

transmitting the result of said monitoring from the optical receiver to the optical transmitter by using an optical supervisory signal over an upstream optical transmission line; and

determining the number and interval of steps in said stepwise raising of the output power of the optical amplifier, based on the result of said monitoring,

enabling a first timer having a predetermined time constant, when the optical transmitter starts to operate;

starting an optical amplifier controller raising the output power of said optical amplifier in a stepwise fashion after said first timer has expired; and

enabling a second timer having a predetermined time constant, when the optical transmitter starts to operate;

starting a pump light source controller raising the pump light in a stepwise fashion after said second timer has expired, whereby said pump light source starts up later than said optical amplifier.

38. (previously presented) A method of suppressing optical supervisory signal errors, comprising:

raising output power of an optical amplifier up to a desired level in a stepwise fashion, the optical amplifier being disposed in an optical transmitter to amplify main optical signals for transport over downstream fiber-optic transmission line;

raising a pump beam to a desired power level in a stepwise fashion, the pump beams being produced by a pump light source disposed in an optical receiver for injection to the downstream fiber-optic transmission line so as to cause Raman amplification;

monitoring power levels of at least one of an incoming main optical signal and an incoming optical supervisory signal that the optical receiver receives; and

determining the number and interval of steps in said stepwise raising of the pump beam, based on the result of said monitoring.

39. (currently amended)A method of suppressing optical supervisory signal errors, comprising:

raising output power of an optical amplifier up to a desired level in a stepwise fashion, the optical amplifier being disposed in an optical transmitter to amplify main optical signals for transport over a downstream optical transmission line;

raising a pump light to a desired power level in a stepwise fashion, the pump lights being produced by a pump light source disposed in an optical receiver for injection to the downstream optical transmission line so as to cause Raman amplification;

monitoring power levels of at least one of an incoming main optical signal and an incoming optical supervisory signal that the optical receiver receives;

notifying the optical transmitter of completion of said stepwise raising of the pump light by sending an optical supervisory signal over an upstream -optic transmission line; and

determining the number and interval of steps in said stepwise raising of the output power of the optical amplifier and in said stepwise raising of the pump light, based on the result of said monitoring;

enabling a first timer having a predetermined time constant, when the optical transmitter starts to operate;

starting an optical amplifier controller raising the output power of said optical amplifier in a stepwise fashion after said first timer has expired; and

enabling a second timer having a predetermined time constant, when the optical

transmitter starts to operate;

starting a pump light source controller raising the pump light in a stepwise fashion after said second timer has expired, whereby said pump light source starts up later than said optical amplifier.

40. (currently amended) A method of suppressing optical supervisory signal errors, comprising:

raising output power of an optical amplifier up to a desired level in a stepwise fashion, the optical amplifier being disposed in an optical transmitter to amplify main optical signals for transport over a downstream optical transmission line;

raising a pump light to a desired power level in a stepwise fashion, the pump lights being produced by a pump light source disposed in an optical receiver for injection to the downstream optical transmission line so as to cause Raman amplification;

monitoring power levels of at least one of an incoming main optical signal and an incoming main optical supervisory signal that the optical receiver receives;

transmitting the result of said monitoring from the optical receiver to the optical transmitter by using an optical supervisory signal over an upstream optical transmission line; and

determining the number and interval of steps in said stepwise raising of the output power of the optical amplifier and in said stepwise raising of the pump light, based on the result of said monitoring;

enabling a first timer having a predetermined time constant, when the optical transmitter starts to operate;

starting an optical amplifier controller raising the output power of said optical amplifier in a stepwise fashion after said first timer has expired; and

enabling a second timer having a predetermined time constant, when the optical transmitter starts to operate;

starting a pump light source controller raising the pump light in a stepwise fashion after said second timer has expired, whereby said pump light source starts up later than said optical amplifier;

wherein the sending end and receiving end perform said stepwise raising of the output power and pump beam, respectively, while exchanging each other's ongoing process status by sending optical supervisory signals back and forth over the upstream and downstream optical transmission lines.

41. (cancelled)

42. (cancelled)

43. (previously presented) The optical transmission system according to claim 1, wherein:

said optical amplifying control means comprises a timer with a predetermined time constant that is enabled when the optical transmission system starts to operate; and

said optical amplifying control means starts to raise the output power of said optical amplifying means in a stepwise fashion after said timer has expired, whereby said optical amplifying means starts up later than said pump light emitting means.

44. (previously presented) The optical transmission system according to claim 16, wherein:

said optical amplifying control means comprises a timer with a predetermined time constant that is enabled when the optical transmission system starts to operate, and

said optical amplifying control means starts to raise the output power of said optical amplifying means in a stepwise fashion after said timer has expired, whereby said optical amplifying means in one station starts up later than said pump light emitting means in the other station.